

SimTK: A Resource-Sharing and Community-Building Platform for Biosimulations

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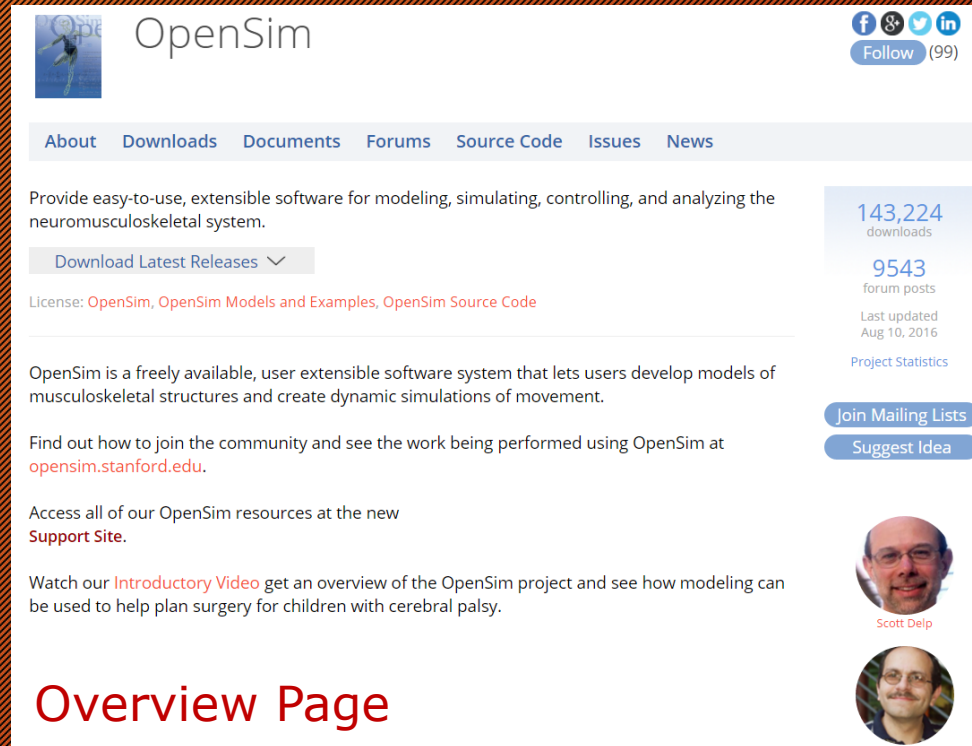
What is SimTK?

The screenshot shows the SimTK website interface. At the top, there's a navigation bar with 'SimTK' logo, a search bar, and links for 'Projects', 'About', 'Sign Up', and 'Log In'. Below the navigation bar, a banner for 'Postdoc openings for musculoskeletal simulation for CP and mobile biofeedback training projects...' is visible. The main content area displays 'Search Results: knee' with a 'Sort by: Most downloads' dropdown. On the left, there are three filter categories: 'Primary Content', 'Biocomputational Focus', and 'Biological Applications', each with a list of sub-items. The main list of results includes:

- Grand Challenge Competition to Predict In Vivo Knee Loads**: Provide a comprehensive data set with associated models that will enable researchers to validate musculoskeletal model estimates of muscle and joint contact forces in the knee. Total downloads: 7461 Last updated: 10/14/2015.
- Open Knee(s): Virtual Biomechanical Representations of the Knee Joint**: Overall purposes of the project are: 1) To provide free access to three-dimensional finite element representations of the knee joint 2) Open development of knee models for collaborative testing and use. Total downloads: 5879 Last updated: 08/31/2016.
- MB Knee: Multibody Models of the Human Knee**: Provide the components for building multibody knee models based on three cadaver subjects. The site also provides complete example models including contacts, ligaments, and menisci. Total downloads: 2994 Last updated: 09/10/2015.
- Model with Knee Ligaments**: The aim of this project is to provide a model to estimate muscle, ligament and knee joint loading related to various gait activities. Total downloads: 506 Last updated: 03/27/2014.
- Knee muscle forces during walking and running estimated from an EMG-driven model**: This paper provides kinematic, EMG, and muscle force data for 45 individuals during walking and running. Total downloads: 313 Last updated: 09/14/2009.
- Predicting Cell Deformation from Body Level Mechanical Loads**: 1) To develop computational models of the knee joint at multiple

- Repository for the biosimulation community to enable collaboration and easy sharing of digital assets
- SimTK projects
 - Each owned and managed independently
 - Multiple levels of privacy control
 - Access to many tools for sharing and building community

SimTK Project Features



The screenshot shows the OpenSim project website. At the top left is the OpenSim logo, which features a stylized figure in a blue suit. To the right of the logo is the text "OpenSim". Further right are social media icons for Facebook, Google+, Twitter, and LinkedIn, with a "Follow (99)" button below them. A navigation bar contains links for "About", "Downloads", "Documents", "Forums", "Source Code", "Issues", and "News". The main content area starts with a paragraph: "Provide easy-to-use, extensible software for modeling, simulating, controlling, and analyzing the neuromusculoskeletal system." Below this is a button labeled "Download Latest Releases" with a dropdown arrow. A line of text reads: "License: [OpenSim](#), [OpenSim Models and Examples](#), [OpenSim Source Code](#)". Another paragraph states: "OpenSim is a freely available, user extensible software system that lets users develop models of musculoskeletal structures and create dynamic simulations of movement." This is followed by: "Find out how to join the community and see the work being performed using OpenSim at [opensim.stanford.edu](#)." Then: "Access all of our OpenSim resources at the new [Support Site](#)." Finally: "Watch our [Introductory Video](#) get an overview of the OpenSim project and see how modeling can be used to help plan surgery for children with cerebral palsy." On the right side, there is a statistics box with "143,224 downloads", "9543 forum posts", "Last updated Aug 10, 2016", and a link to "Project Statistics". Below this are two buttons: "Join Mailing Lists" and "Suggest Idea". At the bottom right, there are two circular profile pictures. The top one is of Scott Delp, with his name written below it. The bottom one is of another person, but their name is not visible.

OpenSim

Follow (99)

About Downloads Documents Forums Source Code Issues News

Provide easy-to-use, extensible software for modeling, simulating, controlling, and analyzing the neuromusculoskeletal system.

Download Latest Releases ▾

License: [OpenSim](#), [OpenSim Models and Examples](#), [OpenSim Source Code](#)

OpenSim is a freely available, user extensible software system that lets users develop models of musculoskeletal structures and create dynamic simulations of movement.

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143,224 downloads


9543 forum posts


Last updated Aug 10, 2016

[Project Statistics](#)

[Join Mailing Lists](#)

[Suggest Idea](#)


Scott Delp



Overview Page

SimTK Project Features



The screenshot shows the OpenSim project website. At the top, there's a navigation bar with links: About, Downloads, Documents, Forums, Source Code, Issues, and News. Below this, a description states: "Provide easy-to-use, extensible software for modeling, simulating, controlling, and analyzing the neuromusculoskeletal system." A button for "Download Latest Releases" is visible. The license is listed as "OpenSim, OpenSim Models and Examples, OpenSim Source Code". A paragraph describes OpenSim as a freely available, user extensible software system. Another paragraph invites users to join the community at opensim.stanford.edu. A link to the "Support Site" is provided. A video link is also present. On the right side of the website, statistics are displayed: 143,224 downloads, 9543 forum posts, and a last update date of Aug 10, 2016. A "Project Statistics" link is also shown. Below the main text, there's a world map with numerous location pins, and a line graph titled "Download Packages Statistics" showing download trends from 2014 to 2016. The graph shows a peak in early 2014 followed by a decline and then a steady increase through 2016.

Connections to
GitHub, DataMed,
and other
dissemination
platforms

Easy upload/
download of
documents

Overview Page

Publications

Statistics

<http://simtk.org>



SimTK Project Features

Mailing Lists

Wiki
News

Followers



OpenSim

About Downloads Documents Forums Source Code Issues News

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NEW TOPIC * Search this forum... Search

2744 topics 1 2 3 4 5 ... 110 >

| TOPICS | REPLIES | VIEWS | LAST POST |
|---|---------|-------|--|
| OpenSim Support Site Launch by Jennifer Hicks » April 10, 2012 2:29 pm | 0 | 2374 | by Jennifer Hicks » April 10, 2012 2:29 pm |
| Force Reporter Problem by Jonathan Mortensen » September 9, 2016 11:46 am | 0 | 3 | by Jonathan Mortensen » September 9, 2016 11:46 am |
| Can I use VS2015 to work with opensim3.0? by feng wei » September 9, 2016 10:49 am | 1 | 7 | by Christopher Dembia » September 9, 2016 10:55 am |
| Kinematics modeling by feng wei » September 9, 2016 7:57 am | 0 | 3 | by feng wei » September 9, 2016 7:57 am |
| unable to run static optimization with clutchedpathspring by chetan thakur » September 6, 2016 10:05 am | 4 | 53 | by Dimitar Stanev » September 9, 2016 12:02 am |

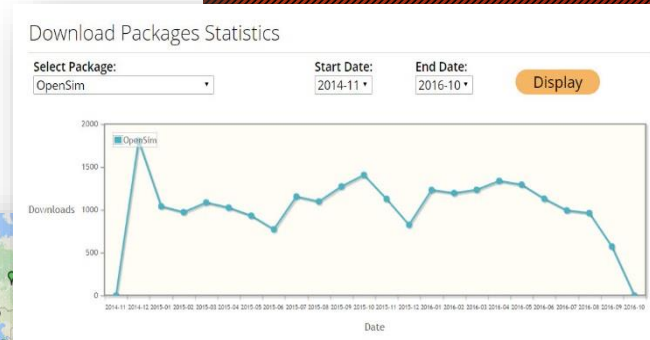
Discussion Forum

Easy upload/
download of
documents

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Overview Page

Publications



<http://simtk.org>



SimTK Communities

Shoulder Modeling

The shoulder modeling community is interested in understanding and utilizing biomechanics knowledge of the shoulder and upper-extremity to advance clinical treatments and diagnoses, ergonomics, and sports performance.

4 total projects 4 projects with downloads

[See all community projects](#)

[Add project to community](#)

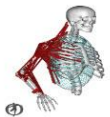
Recently updated projects



Upper Extremity Dynamic Model

Provides the files associated with a dynamic model of the upper limb for use in SIMM or OpenSim.

Total downloads: 2173 | Last updated: 01/26/2017



Dynamic Arm Simulator

Provides a real-time, dynamic simulation of arm movement.

Total downloads: 758 | Last updated: 11/07/2016



Delft Shoulder and Elbow Model

Provides the code base for a musculoskeletal model of the upper limb.

Total downloads: 1288 | Last updated: 09/20/2016



Model of the Scapulothoracic Joint

News



New file added:
[ShoulderDatabaseV1.1.zip](#)
Delft Shoulder and Elbow Model
Mar 20, 2015

Publications

[Seth A, Matias R, Veloso AP and Delp SL. A biomechanical model of the scapulothoracic joint to accurately capture scapular kinematics during shoulder movements. PLOS ONE.](#)

Chadwick, E., Blana, D., Kirsch, R., &

- Collections of projects
- Information from projects automatically summarized on the community page

Branding

[HOME](#)[ABOUT](#)[GALLERY](#)[DOWNLOAD](#)[DOCUMENTATION](#)[REPOSITORY](#)[OUR TEAM](#)[CONTACT](#)

 **USERS: DOWNLOAD INSTALLER PACKAGES**

[DOWNLOAD INSTALLATION PACKAGE](#)The SimTK logo, featuring the text 'SimTK' in a sans-serif font.[Projects](#) ▾[About](#) ▾[Sign Up](#)[Log In](#)[Projects](#)[People](#)

SimVascular: Cardiovascular Modeling and Simulation

   
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Downloads

[Feedback](#)

SimVascular

The SimVascular application allows users to model vessels and simulate blood flow. You can install SimVascular by downloading the package for your system. The opensource package includes MeshSim functionality, however a MeshSim License is required. Contact Simmetrix (<http://www.simmetrix.com/>) to get a license. We include a fully functional open source meshing alternative. Please consult the SimVascular website for more information: <http://simvascular.org>

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7,552
downloads

471
forum posts

Last updated
Mar 22, 2017

[Project Statistics](#)[Join Mailing Lists](#)[Suggest Idea](#)[Job Stats](#)

<http://simtk.org>

The mobilize logo, featuring the word 'mobilize' in a lowercase, sans-serif font, with a stylized graphic of three running figures to the right.

Learn More

Current working group projects on SimTK:

- Credible Practice of Modeling & Simulation in Healthcare (<https://simtk.org/projects/cpms>)
- Population Modeling Working Group (<https://simtk.org/projects/popmodwkgrpimag>)

Demo working group project & community on SimTK

- <https://simtk.org/projects/joytest>
- Login: guest1 / guest2 / guest3
- Password: msm10years

Poster: "Democratization of Modeling and Simulation in Biomechanics"

<http://simtk.org>



Acknowledgements

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U54 EB020405 (data sharing for Mobilize Center)

R01 GM104139 (cloud computing for OpenKnee project)